

Mirco Marchetti

Curriculum Vitæ

Personal information

First name: Mirco

Last name: Marchetti

Date of birth: July 6, 1981

Place of birth: Carpi (MO), Italy

Citizenship: Italian

Current affiliation

Researcher (faculty member) at the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia.

Education

- 02/2009 **Doctor of Philosophy**
PhD in *Computer Engineering and Science* from the *International Doctorate School in Information and Communication Technologies*, held by the Department of Information Engineering of the University of Modena and Reggio Emilia, under the supervision of Prof. Michele Colajanni. Thesis title: “Distributed architectures and algorithms for network security”.
- 07/2006 **Qualification to the profession of Engineer**
Passed the national abilitation exam with an evaluation of 234/240 in the first session of 2006 at the University of Modena and Reggio Emilia.
- 12/2005 **Master’s degree in Computer Engineering**
Score: 110/110 cum laude from the University of Modena and Reggio Emilia. Thesis title (translation of the original Italian title): “Stateful network intrusion detection over high speed links”. Advisor: Prof. Michele Colajanni.
- 12/2003 **Bachelor’s degree in Computer Engineering**
Score: 108/110 from the University of Modena and Reggio Emilia. Thesis title (translation of the original Italian title): “Firewalling with Cisco routers and iptables”. Advisor: Prof. Michele Colajanni.

PhD Schools

- FOSAD 08 *International School on Foundations of Security Analysis and Design*, August 25th-30th, 2008, Bertinoro, Italy.
- SWING 08 3rd Bertinoro *PhD School on Security of Wireless Networking*, July 27h-August 1st, 2008, Bertinoro, Italy.
- SWING 07 2nd Bertinoro *PhD School on Security of Wireless Networking*, August 26th-31st, 2007, Bertinoro, Italy.
- SWING 06 Bertinoro *PhD School on Security for Wireless Networking*, September 3rd-8th, 2006, Bertinoro, Italy.
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Activities within Universities and Research Centers

Italian universities and research centers

Mirco Marchetti has been Assistant Researcher for 7 years and 9 months, and PhD student (with scholarship) for 3 years.

- 11/2016-today **Researcher**
within the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia.
- 07/2016-11/2016 **Assistant Researcher (senior level)**
within the Interdepartmental Research Center on Security and Safety (CRIS) of the University of Modena and Reggio Emilia. Research topic: “Algorithms and architectures for guaranteeing security of outsourced data”.
- 07/2013-07/2016 **Assistant Researcher (senior level)**
within the Interdepartmental Research Center on Security and Safety (CRIS) of the University of Modena and Reggio Emilia. Research topic: “Scalable monitoring systems and security intelligence”.
- 07/2011-07/2013 **Assistant Researcher (senior level)**
within the Interdepartmental Research Center on Security and Safety (CRIS) of the University of Modena and Reggio Emilia. Research topic: “Models, algorithms and prototypes for improving the security of geographically distributed systems and applications”.
- 01/2009-07/2011 **Assistant researcher**
within the Department of Information Engineering of the University of Modena and Reggio Emilia. Research topic: “Security of information systems and services of critical infrastructures”.
- 01/2006-12/2008 **PhD**
within the *International Doctorate School in Information and Communication Technologies*, organized by the Department of Information Engineering of the University of Modena and Reggio Emilia.

International universities and research centers

- 03/2009-06/2009 **Visiting researcher**
at the department of Computer Science of the University of Texas at Austin (TX, USA). Supervisor: Prof. Lorenzo Alvisi.
- 11/2007-06/2008 **Visiting research scholar**
at the department of Computer Science of the University of Texas at Austin (TX, USA). Supervisor: Prof. Lorenzo Alvisi.
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Publications

International Journals

- [1] **Mirco Marchetti**, Dario Stabili, “READ: Reverse Engineering of Automotive Dataframes”, *IEEE Transactions on Information Forensics and Security*, accepted, in press.
- [2] Luca Ferretti, **Mirco Marchetti**, Mauro Andreolini, Michele Colajanni, “A symmetric cryptographic scheme for data integrity verification in cloud databases”, *Elsevier Information Sciences*, Jan 2018, Volume 422, pag. 497-515, ISSN: 0020-0255.
- [3] Giovanni Apruzzese, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Detection and Threat Prioritization of Pivoting Attacks in Large Networks”, *IEEE Transactions on Emerging Topics in Computing (TETC)*, Jan 2018, Volume: in press, available as IEEE Early Access, ISSN: 2168-6750.
- [4] **Mirco Marchetti**, Fabio Pierazzi, Michele Colajanni, Alessandro Guido, “Analysis of high volumes of network traffic for Advanced Persistent Threat detection”, *Elsevier Computer Networks Journal*, November 2016, Volume 109, pag. 127-141, ISSN: 1389-1286.
- [5] Fabio Pierazzi, Sara Casolari, Michele Colajanni, **Mirco Marchetti**, “Exploratory security analytics for anomaly detection”, *Elsevier Computers & Security Journal*, February 2016, Volume 56, pag. 28-49, ISSN: 0167-4048.
- [6] Mauro Andreolini, Michele Colajanni, **Mirco Marchetti**, “A collaborative framework for intrusion detection in mobile networks”, *Elsevier Information Sciences*, Vol 31, November 2015, ISSN: 0020-0255.
- [7] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Scalable architecture for multi-user encrypted SQL operations on cloud database services”, *IEEE Transactions on Cloud Computing*, Volume 2, Number 4, 2014, ISSN: 2168-7161.
- [8] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Performance and cost evaluation of an adaptive encryption architecture for cloud databases”, in *IEEE Transactions on Cloud Computing*, Volume 2, Numero 2, 2014. ISSN: 2168-7161.
- [9] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, “Distributed, concurrent, and independent access to encrypted cloud databases”, *IEEE Transactions on Parallel and Distributed Systems*, Volume 25, Number 2, February 2014. ISSN: 1045-9219. **Selected as spotlight paper.**
- [10] **Mirco Marchetti**, Michele Colajanni, Fabio Manganiello, “Framework and Models for Multistep Attack Detection”, *International Journal on Security and its Applications*, Volume 5, Number 4, October 2011, ISSN: 1738-9976.

Book chapters

- [11] **Mirco Marchetti**, Michele Colajanni, “Cooperative approaches to SIEM and Intrusion Detection”, chapter in the book *Advances in Security Information Management*, Nova Publishing, January 2013, ISBN: 978-1-62417-204-5.
- [12] Enrico Angori, Michele Colajanni, **Mirco Marchetti**, Michele Messori, “Collaborative attack detection using Distributed Hash Tables”, chapter in the book *Collaborative Financial Infrastructure Protection: Tools, Abstractions and Middleware*, Springer, January 2012, ISBN 978-3-642-20419-7.
- [13] **Mirco Marchetti**, Michele Colajanni, Michele Messori, Leonardo Aniello, Ymir Vigfusson, “Cyber attacks on financial critical infrastructures”, chapter in the book *Collaborative Financial Infrastructure Protection: Tools, Abstractions and Middleware*, Springer, January 2012, ISBN 978-3-642-20419-7.

International conferences

- [14] Gianfranco Burzio, Giuseppe Faranda Cordella, Michele Colajanni, **Mirco Marchetti** and Dario Stabili, “Cybersecurity of connected autonomous vehicles - A ranking based approach”, Proc. of the *AEIT International conference of electrical and electronic technologies for automotive* (AUTOMOTIVE 2018), Milan, Italy, July 2018.
- [15] Dario Stabili, Luca Ferretti and **Mirco Marchetti**, “Analyses of secure automotive communication protocols and their impact on vehicles life-cycle”, Proc. of the *IEEE Smart Industries Workshop* (SIW2018) in conjunction with the *4th IEEE International Conference on Smart Computing* (SmartComp), Taormina, Italy, June 2018. ISBN: 978-1-5386-4705-9
- [16] Giovanni Apruzzese, Michele Colajanni, Luca Ferretti, Alessandro Guido and **Mirco Marchetti**, “On the effectiveness of deep and machine learning for cybersecurity”, Proc. of the *10th NATO International conference on Cyber Conflicts* (CyCon X), Tallin, Estonia, May 2018. ISBN: 978-9-9499-9043-6
- [17] Tsvika Dagan, **Mirco Marchetti**, Dario Stabili, Michele Colajanni and Avishai Wool, “Vehicle Safe-Mode, Limp-Mode in the Service of Cyber Security”, Proc. of the *2017 Embedded Security in Cars conference* (ESCAR Europe 2017), Berlin, Germany, November 2017.
- [18] Giovanni Apruzzese, **Mirco Marchetti**, Michele Colajanni, Gabriele Gambigliani Zoccoli, Alessandro Guido, “Identifying malicious hosts involved in periodic communications”, Proc. of the *16th IEEE International Symposium on Network Computing and Applications* (NCA 2017), Cambridge, MA, USA, October 2017. ISBN: 978-1-5386-1465-5
- [19] Dario Stabili, **Mirco Marchetti**, Michele Colajanni, “Detecting attacks to internal vehicle networks through Hamming distance”, Proc. of the *IEEE 2017 AEIT International Annual Conference - Infrastructures for Energy and ICT* (AEIT 2017), Cagliari, Italy, September 2017. ISBN: 978-8-8872-3737-5
- [20] Luca Ferretti, **Mirco Marchetti**, Michele Colajanni, “Verifiable delegated authorization for user-centric architectures and an OAuth2 implementation”, Proc. of the *3rd IEEE International COMPSAC Workshop on Secure Identity Management in the Cloud Environment* (SIMICE 2017), Turin, Italy, July 2017. ISBN: 978-1-5386-0367-3
- [21] **Mirco Marchetti**, Dario Stabili, “Anomaly detection of CAN bus messages through analysis of ID sequences”, Proc. of the *2017 IEEE Intelligent Vehicles Symposium* (IV 2017), Redondo Beach, CA, USA, June 2017. ISBN: 978-9949-9544-8-3.

- [22] Fabio Pierazzi, Giovanni Apruzzese, Michele Colajanni, Alessandro Guido, **Mirco Marchetti**, “Scalable architecture for online prioritization of cyber threats”, Proc. of the *9th NATO International Conference on Cyber Conflicts* (CyCon 2017), Tallin, Estonia, June 2017. ISBN: 978-9949-9544-8-3.
- [23] Luca Ferretti, Michele Colajanni, and **Mirco Marchetti**, “Implementation of Verified Set Operation Protocols Based on Bilinear Accumulators”, Proc. of the *15th International Conference on Cryptology and Network Security* (CANS 2016), Milan, Italy, November 2016.
- [24] **Mirco Marchetti**, Dario Stabili, Alessandro Guido, Michele Colajanni, “Evaluation of entropy-based anomaly detection applied to in-vehicle networks”, Proc. of the *IEEE 2nd International Forum on Research and Technologies for Society and Industry* (RTSI 2016), Bologna, Italy, September 2016. ISBN: 978-1-5090-1131-5
- [25] Luca Ferretti, **Mirco Marchetti**, Michele Colajanni, “Guaranteeing correctness of bulk operations in outsourced databases”, Proc. of the *30th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy* (DBSec 2016), Trento, Italy, July 2016. ISBN: 978-3-319-41482-9.
- [26] **Mirco Marchetti**, Fabio Pierazzi, Alessandro Guido, Michele Colajanni, “Countering Advanced Persistent Threats through security intelligence and big data analytics”, Proc. of the *8th NATO International Conference on Cyber Conflicts* (CyCon 2016), Tallin, Estonia, June 2016. ISBN: 978-9949-9544-8-3.
- [27] Andrea Andreoli, Luca Ferretti, **Mirco Marchetti**, Michele Colajanni, “Enforcing correct behavior without trust in cloud key-value databases”, Proc. of the *2nd IEEE International Conference on Cyber Security and Cloud Computing* (CSCloud 2015), New York, USA, November 2015, ISBN: 978-1-46739-301-0.
- [28] Fabio Pierazzi, Andrea Balboni, Alessandro Guido, **Mirco Marchetti**, “The network perspective of cloud security”, Proc. of the *4th IEEE Symp. Network Cloud Computing and Applications* (NCCA 2015), Munich, Germany, June 2015, ISBN: 978-1-46737-742-3.
- [29] Andrea Balboni, Michele Colajanni, **Mirco Marchetti**, Andrea Melegari, “Supporting sense-making and decision-making through time evolution analysis of open sources”, Proc. of the *7th NATO International Conference on Cyber Conflicts* (CyCon 2015), Tallin, Estonia, May 2015, ISBN: 978-1-47998-812-9.
- [30] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, Marcello Missiroli, “Efficient detection of unauthorized data modification in cloud databases”, Proc. of the *19th IEEE Symposium on Computers and Communications* (ISCC 2014), Funchal, PT, June 2014, ISBN: 978-1-47994-276-3.
- [31] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, “Access control enforcement on query-aware encrypted cloud databases”, Proc. of the *5th IEEE International Conference on Cloud Computing Technology and Science* (CoudCom 2013), Bristol, UK, December 2013. ISBN: 978-0-7695-5095-4, ISSN: 2330-2186.
- [32] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Security and confidentiality solutions for public cloud database services”, Proc. of the *7th International Conference on Emerging Security Information, Systems and Technologies*, Barcelona, Spain, August 2013. ISBN: 978-1-61208-298-1, ISSN: 2162-2116. **Selected as best paper.**

- [33] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, Adriano Enrico Scaruffi, “Transparent access on encrypted data distributed over multiple cloud infrastructures”, Proc. of the *4th International Conference on Cloud Computing, GRIDs, and Virtualization*, Valencia, Spain, May-June 2013. ISBN: 978-1-61208-271-4, ISSN: 2308-4294.
- [34] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, “Supporting security and consistency for cloud database”, Proc. of the *4th International Symposium on Cyberspace Safety and Security (CSS 2012)*, Melbourne, Australia, December 2012. ISBN 978-3-642-35361-1, ISSN: 0302-9743.
- [35] **Mirco Marchetti**, Michele Colajanni, Fabio Manganiello, “Identification of correlated network intrusion alerts”, Proc. of the *3rd International Workshop on Cyberspace Safety and Security (CSS 2011)*, Milan, Italy, September 2011, ISBN 978-1-4577-1033-9.
- [36] Fabio Manganiello, **Mirco Marchetti**, Michele Colajanni, “Multistep Attack Detection and Alert Correlation in Intrusion Detection Systems”, Proc. of the *5th International Conference on Information Security and Assurance (ISA 2011)*, Brno, Repubblica Ceca, August 2011, ISBN 978-3-642-23140-7.
- [37] Michele Colajanni, Luca Dal Zotto, **Mirco Marchetti**, Michele Messori, “Defeating NIDS evasion in Mobile IPv6 networks”, Proc. of the *12th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM 2011)*, Lucca, Italy, June 2011. ISBN: 978-1-4577-0350-8.
- [38] Michele Colajanni, Luca Dal Zotto, **Mirco Marchetti**, Michele Messori, “The problem of NIDS evasion in mobile networks”, Proc. of the *4th IFIP International Conference on New Technologies, Mobility and Security (NTMS 2011)*, Paris, France, February 2011. ISBN: 978-1-4244-8705-9.
- [39] Michele Colajanni, **Mirco Marchetti**, Michele Messori, “Selective and early threat detection in large networked systems”, Proc. of the *10th IEEE International Conference on Computer and Information Technology (CIT 2010)*, Bradford, UK, June 2010. ISBN: 978-0-7695-4108-2.
- [40] **Mirco Marchetti**, Michele Messori, Michele Colajanni, “Peer-to-peer Architecture for Collaborative Intrusion and Malware Detection on a Large Scale”, Proc. of the *12th Information Security Conference (ISC 2009)*, Pisa, Italy, September 2009. ISBN: 978-3-642-04473-1. ISSN: 0302-9743.
- [41] Giorgia Lodi, Leonardo Querzoni, Roberto Baldoni, **Mirco Marchetti**, Michele Colajanni, Vita Bortnikov, Gregory Chockler, Eliezer Dekel, Gennady Laventman, Alexey Roytman, “Defending financial infrastructures through early warning systems: the intelligence cloud approach”, Proc. of the *5th Annual Workshop on Cyber Security and Information Intelligence Research: Cyber Security and Information Intelligence Challenges and Strategies (CSIIRW09)*, Oak Ridge, TN, USA, April 2009. ISBN: 978-1-60558-518-5.
- [42] Allen Clement, Edmund Wong, Lorenzo Alvisi, Mike Dahlin, **Mirco Marchetti**, “Making Byzantine Fault Tolerant Systems Tolerate Byzantine Faults”, Proc. of the *6th USENIX Symposium on Networked Systems Design and Implementation (NSDI 09)*, Boston, MA, USA, April 2009. ISBN: 978-1-931971-67-6.
- [43] Harry Li, Allen Clement, **Mirco Marchetti**, Manos Kapritsos, Luke Robison, Lorenzo Alvisi, Mike Dahlin, “FlightPath: Obedience vs. Choice in Cooperative Services”, Proc. of the *Usenix Symposium on Operating Systems Design and Implementation 2008 (OSDI 2008)*, San Diego, California, December 2008. ISBN: 978-1-931971-65-2.
- [44] **Mirco Marchetti**, Michele Colajanni, “Adaptive traffic filtering for efficient and secure IP-mobility”, Proc. of the *4th ACM International Workshop on QoS and Security for Wireless Networking (Q2SWinet 2008)*, Vancouver, British Columbia, Canada, October 2008. ISBN 978-1-60558-237-5.

- [45] Allen Clement, **Mirco Marchetti**, Edmund Wong, Lorenzo Alvisi, Mike Dahlin, “BFT: The time is now”, Proc. of *Large-scale Distributed Systems and Middleware (LADIS 2008)*, Newark, NY, USA, September 2008. ISBN: 978-1-60558-296-2.
- [46] Michele Colajanni, Daniele Gozzi, **Mirco Marchetti**, “Collaborative architecture for malware detection and analysis”, Proc. of the *IFIP 23rd International Information Security Conference (SEC 2008)*, Milano, Italy, September 2008. ISBN: 978-0-387-09698-8.
- [47] Michele Colajanni, Daniele Gozzi, **Mirco Marchetti**, “Selective alerts for the run-time protection of distributed systems”, Proc. of the *Ninth International Conference on Data Mining, Protection, Detection and other Security Technologies (DATAMINING 2008)*, Cadiz, Spain, May 2008. ISBN: 978-1-84564-110-8. ISSN: 1743-3517.
- [48] Michele Colajanni, Daniele Gozzi, **Mirco Marchetti**, “Enhancing interoperability and stateful analysis of cooperative network intrusion detection systems”, Proc. of the *ACM/IEEE Symposium on Architectures for Networking and Communication Systems (ACM/IEEE ANCS 2007)*, Orlando, FL, USA, December 2007. ISBN: 978-1-59593-945-6.
- [49] Mauro Andreolini, Sara Casolari, Michele Colajanni, **Mirco Marchetti**, “Dynamic load balancing for network intrusion detection systems based on distributed architectures”, Proc. of the *6th IEEE International Symposium on Network Computing and Applications (IEEE NCA07)*, Cambridge, MA, USA, July 2007. ISBN: 978-0-76952-922-6.
- [50] Michele Colajanni, **Mirco Marchetti**, “A Parallel Architecture for Stateful Intrusion Detection in High Traffic Networks”, Proc. of the *IEEE/IST Workshop on Monitoring, Attack Detection and Mitigation (MonAM 2006)*, Tubingen, Germany, September 2006. ISBN 3-937201-02-5. ISSN 1862-7803. **Selected as best paper.**

Italian conferences

- [51] Michele Colajanni, *Mirco Marchetti*, Andrea Balboni, “Analisi temporale di sorgenti informative eterogenee”, Atti del *Cyber Defense Symposium 2015*, Chiavari, Italia, maggio 2015.
- [52] Saverio Verrascina, Daniele Gozzi, **Mirco Marchetti**, “Architettura collaborativa per la rilevazione e l’analisi di malware”, Atti del *5to convegno Net & System Security (NSS 2007)*, Pisa, Italia, settembre 2007.

Theses

- [53] **Mirco Marchetti**, “Distributed architectures and algorithms for network security”, PhD. Thesis, International Doctorate School in Information and Communication Technologies – Computer Engineering and Science, University of Modena and Reggio Emilia, February 2009.
- [54] **Mirco Marchetti**, “Stateful network intrusion detection su link ad alta velocità”, tesi di Laurea Specialistica in Ingegneria Informatica presso l’Università di Modena e Reggio Emilia, dicembre 2005.
- [55] **Mirco Marchetti**, “Firewalling mediante router Cisco e iptables”, tesi di Laurea in Ingegneria Informatica presso l’Università di Modena e Reggio Emilia, dicembre 2003.

Research activities

Bibliometric indexes

Bibliometric indexes according to Google Scholar, as of September 17th 2018:

| | |
|------------------|-----|
| Citations number | 985 |
| h-index | 17 |
| i10-index | 24 |

Please refer to the Google Scholar profile of Mirco Marchetti for updated bibliometric indexes:
<https://scholar.google.it/citations?user=UdOISqYAAAAAJ>.

Bibliometric indexes according to Scopus, as of September 17th 2018:

| | |
|------------------|-----|
| Citations number | 250 |
| h-index | 10 |
| Documents | 44 |

Please refer to the Scopus profile of Mirco Marchetti for updated bibliometric indexes:
<https://www.scopus.com/authid/detail.uri?authorId=24462527900>.

Publications in Usenix OSDI 2008 ([43], 112 citations according to Google Scholar) and Usenix NSDI 2009 ([42], 255 citations according to Google Scholar) are not yet indexed by Scopus.

Research topics

Mirco Marchetti's research activities relates to the following topics:

- distributed fault-tolerant systems;
- distributed systems security;
- security for Cloud systems;
- security analytics;
- automotive cybersecurity.

Each research topic lead to the publication of innovative results in peer-reviewed international conferences and journals. In many cases Mirco Marchetti contributed to the development of prototypes and systems used as demonstrators and for the evaluation of performance, reliability and security.

Honors and awards

Featured article

- 02/2014 The paper: Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, "Distributed, concurrent and independent access to encrypted cloud databases" [9] has been selected as **Spotlight Paper** by the international journal *IEEE Transactions on Parallel and Distributed Systems*.

Best paper awards

- 07/2013 **Best Paper Award** at the *International Conference on Emerging Security Information, Systems and Technologies* [32] for the paper: Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, "Security and confidentiality solutions for public cloud database services".

09/2006 **Best Paper Award** at the *IEEE/IST Workshop on Monitoring, Attack Detection and Mitigation* [50] for the paper: Michele Colajanni, **Mirco Marchetti**, “A Parallel Architecture for Stateful Intrusion Detection in High Traffic Networks”.

Honors

01/2006 Winner of a **3-years Scholarship** at the International Doctorate School in Information and Communication Technologies, organized by the Department of Information Engineering of the University of Modena and Reggio Emilia.

Service to the scientific community

Organization of international conferences

NCA 2018 Program Co-Chair and Financial Chair of: *The 17th IEEE International Symposium on Network Computing and Applications (NCA 2018)*, 1-3 November 2018, Cambridge (MA), USA.

SIW 2018 Organizer of: *The IEEE Smart Industries Workshop (SIW 2018)*, colocated with the *4th IEEE International Conference on Smart Computing (SmartComp)*, 18 June 2018, Taormina, Italy.

NCA 2017 Financial Chair of: *The 16th IEEE International Symposium on Network Computing and Applications (NCA 2017)*, 30 October - 1 November 2017, Cambridge (MA), USA.

Session chair

NCA 2017 Sessions “Networking” and “Endpoint and Mobile Device Security”, within *The 16th IEEE International Symposium on Network Computing and Applications*, October 2017, Cambridge, MA, USA.

NTMS 2011 Session “SEC III: Privacy”, within *The Fourth IFIP International Conference on New Technologies, Mobility and Security*, February 2011, Paris, France.

Program committee member

ICOIN 2018 *The 32nd International Conference on Information Networking*, January 10-12 2018, Chiang Mai, Thailand.

ICCISN 2018 *2018 International Conference on Computer Intelligent Systems & Networking*, January 3-5 2018, Hammamet, Tunisia.

CYBER 2017 *The Second International Conference on Cyber-Technologies and Cyber-Systems*, November 12-16 2017, Barcelona, Spain.

NCA 2017 *The 16th IEEE International Symposium on Network Computing and Applications*, October 2017, Cambridge, MA, USA.

SSC 2017 *Third IEEE International Workshop on Sensors and Smart Cities*, May 29-31 2017, Hong Kong.

ITA-SEC 2017 *First Italian Conference on Cybersecurity*, January 17-20 2017, Venice, Italy.

ICOSST 2016 *The 10th IEEE International Conference on Open Source Systems and Technologies*, December 15-17 2016, Lahore, Pakistan.

- SpaCSS 2016 *The 9th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage*, November 16-18 2016, Zhangjiajie, China.
- ICACON 2015 *The 3rd International IBM Cloud Academy Conference*, May 21-23 2015, Budapest, Hungary.
- CSE 2011 *The 14th IEEE International Conference on Computational Science and Engineering*, August 24-26 2011, Dalian, China.
- CIS 2009 *The 2009 International Conference on Computational Intelligence and Security*, December 11-14 2009, Beijing, China.

Reviewer for international journals

- 2018 IEEE Journal on Selected Areas on Communications (JSAC).
 Concurrency and computation: Practice and experience, Wiley.
 Multimedia Tools and Applications, Springer).
 The Computer Journal, Oxford Academic.
 IEEE Transactions on Information Forensics and Security (TIFS).
 Entropy, MDPI.
 Cluster computing, Springer.
 Elsevier Information Systems.
 IEEE Transactions on Services Computing (TSC).
 Elsevier Computers & Security.
 Elsevier Engineering Science and Technology, an International Journal.
 Security and Communication Networks, Wiley.
- 2017 Elsevier Computers & Security (COSE).
 IEEE Transactions on Information Forensics and Security (TIFS).
 Elsevier Information Sciences.
 IEEE Communications Magazine.
 IEEE Transactions on Service Computing (TSC).
- 2016 IEEE Transactions on Service Computing (TSC).
 Entropy, MDPI.
- 2015 Elsevier international journal on Expert Systems with Applications.

- Hindawi - The Scientific World Journal (TSWJ).
- 2014 IEEE Transactions on Cloud Computing (TCC).
Springer Multimedia tools and applications (MTAP).
- 2013 IEEE Transactions on Parallel and Distributed Systems (TPDS).
- 2012 IEEE Transactions on Parallel and Distributed Systems (TPDS).
- 2008 Security and Communication Networks, Wiley.

Reviewer for international conferences

- 2017 *The Second International Conference on Cyber-Technologies and Cyber-Systems (CYBER 2017)*, November 12-16 2017, Barcelona, Spain.
- The 16th IEEE International Symposium on Network Computing and Applications (NCA 2017)*, October 2017, Cambridge, MA, USA.
- IEEE 2017 AEIT International Annual Conference - Infrastructures for Energy and ICT (AEIT 2017)*, Cagliari, Italy, September 2017.
- NATO International Conference on Cyber Conflicts (CyCon 2017)*, May 31-June 2 2017, Tallin, Estonia.
- Third IEEE International Workshop on Sensors and Smart Cities*, May 29-31 2017, Hong Kong.
- IEEE International Conference on Communications (ICC'17)*, May 21-25 2017, Paris, France.
- International Conference on Computing, Networking and Communications (ICNC 2017)*, January 26-29 2017, Silicon Valley, USA.
- The First Italian Conference on Cyber Security (ITASEC 2017)*, January 17-20 2017, Venice, Italy.
- 2016 *The 10th IEEE International Conference on Open Source Systems and Technologies (ICOSST 2016)*, December 15-17 2016, Lahore, Pakistan.
- The 8th IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2016)*, December 12-15 2016, Luxemburg.
- The 9th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (SpaCSS 2016)*, November 16-18 2016, Zhangjiajie, China.
- The 8th IEEE International Conference on Cyber-enabled distributed computing and knowledge discovery (CyberC 2016)*, October 13-14 2016, Chengdu, China.
- NATO International Conference on Cyber Conflicts (CyCon 2016)*, June 2016, Tallin, Estonia.
- 2015 *The 3rd International IBM Cloud Academy Conference (ICACON 2015)*, May 21-23 2015, Budapest, Hungary.
- Third International Symposium on Women in Computing and Informatics (WCI-2015)*, August 10-13 2015, Kerala, India.

- 2012 *The 1st IEEE Workshop on Mobile Consumer Health Care Networks, Systems and Services (MobiCHess-2012)*, June 10-15 2012, Ottawa, Canada.
- 2011 *The 14th IEEE International Conference on Computational Science and Engineering (CSE-2011)*, August 24-26 2011, Dalian, China.
- 2010 *ACM Sigmetrics 2010*, June 14-18 2010, New York, NY, USA.
- 2009 *The 2009 International Conference on Computational Intelligence and Security (CIS'09)*, December 11-14 2009, Beijing, China.
- 2008 *The 2008 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology (WI'08)*, December 9-12 2008, Sydney, Australia.
- ACM Sigmetrics 2008*, June 02-06 2008, Annapolis, MD, USA.
- The IEEE 22nd International Conference on Advanced Information Networking and Applications (AINA 2008)*, March 25-28 2008, Okinawa, Japan.
- 2007 *The 4th International Conference on Ubiquitous Intelligence and Computing (UIC-07)*, July 11-13 2007, Hong Kong, China.
- 2006 *ACM/IFIP/USENIX 7th International Middleware Conference (MIDDLEWARE 2006)*, November 27-December 1 2006, Melbourne, Australia.
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Talks and seminars

Invited seminars

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| LAPAM Federimpresa | Seminar (in Italian) “Sicurezza informatica in azienda” at the <i>Impact Hub</i> Reggio Emilia (Italy), November 21st, 2017. |
| Donne Digitali | Seminar (in Italian) “Sicurezza informatica advanced: impariamo dagli hackers” at the <i>Palazzo Ducale, Accademia Militare di Modena</i>) within the event <i>Donne Digitali (Digital Women)</i> 2017, September 30th, 2017. |
| Tel Aviv University | Seminar “CRIS research activities on information security” at the <i>Blavatnik Interdisciplinary Cyber Research Center (ICRC)</i> of the Tel Aviv University, Israel, on January 27th, 2016. |
| Università di San Marino | Seminar (italian language) “Sicurezza informatica: analisi dei rischi e difese” within the course <i>Diritto penale e Sicurezza Informatica</i> organized by the Department of Economy, Science and Law of the University of San Marino on October 17, 2015. |
| Università di San Marino | Seminar (in italian) “Gli attacchi informatici: tecniche e dimostrazioni” within the course <i>La criminalità informatica</i> organized by the University Center of Education on Security (CUFS) of the University of San Marino on December 9th, 2015 |
| Centro Intelligence Interforze | Seminar (in italian) “SQL Injection” for the <i>Reparto Informazioni e Sicurezza</i> of the <i>Centro Intelligence Interforze (RIS-CII)</i> of the Italian Armed Forces on December 2011 |

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| Università di San Marino | Seminar (in italian) “Gli attacchi informatici: tecniche e dimostrazioni” within the course <i>La criminalità informatica</i> organized by the University Center of Education on Security (CUFS) of the University of San Marino on February 19th, 2011 |
| University of Texas at Austin | Seminar “Enhancing interoperability and stateful analysis of cooperative network intrusion detection systems” at the Department of <i>Computer Science</i> of the University of Texas at Austin in December 2007. |

Invited talks

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| Forum ICT Security 2017 | <i>Forum ICT Security 2017</i> , 18th edition, October 25th 2017. Talk title (in Italian): “Cyber insurance: analisi delle problematiche legate all’assicurazione del rischio informatico” |
| CyberWeek 2016 | <i>CyberWeek - Italy-Israel Workshop</i> , June 21st 2016, Tel Aviv, Israel. Talk title: “Detecting cyberattacks to in-vehicle networks”. |
| Oil&Gas iQ 2015 | <i>Cyber Security for energy and utilities</i> , September 28-30 2015, Amsterdam, Netherlands. Talk title: “Advanced Persistent Threats: The Next Generation Threat” and participation to the panel “Cyber Protection for the Future by Exploring Resilience and Redundancy”. |
| Cyber Defense 2015 | <i>Cyber Defence Symposium</i> , May 13th-14th 2015, Chiavari, Italy. Talk title (in italian): “Framework per l’analisi temporale di sorgenti informative eterogenee”. |
| eCRIME 2015 | <i>The economic impact of cybercrime</i> , January 19-20 2015, Rome, Italy. Talk title: “Temporal and semantic analysis of large open sources – the SNAPSHOT”. |

Talks

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| NCA 2017 | <i>16th IEEE International Symposium on Network Computing and Applications</i> , October 2017, Cambridge, MA, USA. Talk title: “Identifying malicious hosts involved in periodic communications”. |
| RTSI 2016 | <i>2nd IEEE International Forum on Research and Technologies for Society and Industry</i> , September 2016, Bologna, Italy. Talk title: “Evaluation of entropy-based anomaly detection applied to in-vehicle networks”. |
| CyCon 2016 | <i>8th NATO International Conference on Cyber Conflicts</i> , June 2016, Tallin, Estonia. Talk title: “Countering Advanced Persistent Threats through security intelligence and big data analytics”. |
| CSCloud 2015 | <i>2nd IEEE International Conference on Cyber Security and Cloud Computing</i> , November 2015, New York, USA. Talk title: “Enforcing correct behavior without trust in cloud key-value databases”. |
| CyCon 2015 | <i>7th NATO International Conference on Cyber Conflicts</i> , 26-29 May 2015, Tallin, Estonia. Talk title: “Supporting sense-making and decision-making through time evolution analysis of open sources”. |
| CSS 2011 | <i>3rd International Workshop on Cyberspace Safety and Security</i> , September 2011, Milan, Italy. Talk title: “Identification of correlated network intrusion alerts”. |
| WoWMoM 2011 | <i>12th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks</i> , June 2011, Lucca, Italy. Talk title: “Defeating NIDS evasion in Mobile IPv6 networks”. |

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| NTMS 2011 | <i>4th IFIP International Conference on New Technologies, Mobility and Security</i> , February 2011 Paris, France. Talk title: “The problem of NIDS evasion in mobile networks”. |
| ISC 2009 | <i>12th Information Security Conference</i> , Pisa, Italy, September 2009. Talk title: “Peer-to-peer Architecture for Collaborative Intrusion and Malware Detection on a Large Scale”. |
| Q2SWinet 2008 | <i>4th ACM International Workshop on QoS and Security for Wireless Networking</i> , October 2008, Vancouver, British Columbia, Canada. Talk title: “Adaptive traffic filtering for efficient and secure IP-mobility” |
| SEC 2008 | <i>IFIP 23rd International Information Security Conference</i> , September 2008, Milano, Italy. Talk title: “Collaborative architecture for malware detection and analysis”. |
| ANCS 2007 | <i>ACM/IEEE Symposium on Architectures for Networking and Communication Systems</i> , December 2007, Orlando, FL, USA. Talk title: “Enhancing interoperability and stateful analysis of cooperative network intrusion detection systems”. |
| NCA 2007 | <i>6th IEEE International Symposium on Network Computing and Applications</i> , July 2007, Cambridge, MA, USA. Talk title: “Dynamic load balancing for network intrusion detection systems based on distributed architectures”. |
| MonAM 2006 | <i>IEEE/IST Workshop on Monitoring, Attack Detection and Mitigation</i> , September 2006, Tübingen, Germany. Talk title: “A Parallel Architecture for Stateful Intrusion Detection in High Traffic Networks”. |

Research grants

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| 2017-2018 | <p>Research project “Studio di algoritmi e metodologie per l’analisi del rischio informatico” funded by “Experior srl”. funded by the Italian Ministry of Foreign Affairs. Within this project Mirco Marchetti is:</p> <ul style="list-style-type: none"> • <i>Scientific director.</i> |
| 2016-2020 | <p>Horizon 2020 European project “ASGARD - Analysis System for Gathered Raw Data”. Within this project Mirco Marchetti is:</p> <ul style="list-style-type: none"> • <i>Scientific responsible for the research unit of the Interdepartmental Research Center on Security and Safety (CRIS) of the University of Modena and Reggio Emilia;</i> • <i>Vice-representative in the Executive Board;</i> • <i>Representative in the Assembly;</i> |
| 2015-2017 | <p>Research project “CyberLab Italia-Israele” funded by the Italian Ministry of Foreign Affairs. Within this project Mirco Marchetti is:</p> <ul style="list-style-type: none"> • <i>Steering committee member</i> • <i>Leader of research activities in the automotive security field.</i> |

- 2015-2017 European research project “EUOF2CEN - European On-line Fraud Cyber Centre and Expert Network” . Within this project Mirco Marchetti is:
- *Accountable for Work Package WP3*
- 2013-2015 European research project “SNAPSHOT - A Social Network Analysis Platform for the Support of European and HOMeland Threat prevention strategies”. Within this project Mirco Marchetti was:
- *Phase leader of Phase 5 - Development of efficient storage and retrieval techniques for large datasets;*
 - *Phase leader of Phase 17 - Models for statistical analysis of time series.*
- 2011-2013 Italian project of the Industria 2015 framework, “Nuove tecnologie sicure basate sull’ICT per la distribuzione e la vendita automatizzata di prodotti alimentari italiani sui mercati internazionali” (ITaste).
- 2010-2011 Italian research project within the PRIN framework “Dependable Off-The-Shelf based middleware systems for Large-scale Complex Critical Infrastructures” (DOTS-LCCI).
- 2008-2011 European research project FP7-ICT-SEC “Communication Middleware for Monitoring Financial Critical Infrastructures” (CoMiFin). Within this project Mirco Marchetti was:
- *Task leader for the task WP2 - Requirements definition - Security and Trust;*
 - *Task leader for the task WP3 - Framework - Distributed architecture.*
- 2006-2007 Research project funded by the Regional Department for Research, Industry and Innovation “Interactive and multimodal Web services for mobile users” (SWIMM).
- 2006 Research project funded by the FIRB framework, “Middleware for advanced services over large-scale, wired and wireless distributed services” (WEB-MINDS).

Corodination and participation to research groups

- From 01/2009 Participation to the research group lead by Prof. Michele Colajanni, University of Modena and Reggio Emilia
- From 07/2016 Participation to the research group lead by Prof. Avishai Wool, University of Tel Aviv (Israel). Coordination of research activities in the automotive security field.
- 10/2008-02/2011 Participation to the research groups lead by Porf. Roberto Baldoni, University La Sapienza, and by Eliezer Dekel, IBM research, on fields related to security of financial critical infrastructures.
- 11/2007-06/2009 Participation to the research group lead by Prof. Lorenzo Alvisi and Prof. Mike Dahlin, University of Texas at Austin, on themes related to byzantine fault tolerant distributed systems

Tutoring

- From 01/01/2017 Tutor of Eng. Dario Stabili, PhD Student at the International Doctorate School on. Information and Communication Technologies (ICT) of the University of Modena and Reggio Emilia

From 16/10/2017 Tutor of Eng. Giorgio Busuoli, assistant researcher within the research project. “Studio di algoritmi e metodologie per l’analisi del rischio informatico”, led by Mirco Marchetti

Teaching activities

- 2017/2018 Teacher of the course *Protocolli e architetture di rete* (9 CFU, SSD ING-INF/05) at the Department of Physics, Informatics and Mathematics (FIM) of the University of Modena and Reggio Emilia within the Bachelor’s degree course in Computer Science.
- 2016/2017 Teacher of the course *Reti di calcolatori e lab.* (3 CFU, SSD ING-INF/05) at the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia within the Bachelor’s degree course in Computer Engineering and Science.
- From 2013-2014 to 2016-2017 Teacher of the course *Internet* (7 CFU) within the Advanced Course in “Internet-based systems and services” organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces at Chiavari.
- From 2014-2015 to 2016-2017 Teacher of the course *Architetture per comunicazioni sicure* (5 CFU) within the 1st level Master “Cyber Defence” organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces at Chiavari.
- 2014-2015 Teacher of the course *Ethical Hacking e Penetration Test: dalla teoria alla pratica* (28 hours) organized by the Scuola Reiss Romoli.
- 2013-2014 Teacher of the course *Sicurezza delle reti* (40 hours) within the 1st level Master “Tecnico di ricerca specializzato nell’uso e progettazione di reti ed ambienti software distribuiti” of the University of Messina, Italy.
- From 2013-2014 to 2015-2016 Teacher of the course *Computer forensics per sistemi Unix/Linux* (4 CFU) within the 1st level Master “Digital Forensics” organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces at Chiavari.
- From 2011-2012 to 2013-2014 Teacher of the course *Architetture sicure per reti wired e wireless* within the 2nd level Master “Sicurezza Informatica Disciplina Giuridica” of the University of Modena and Reggio Emilia.
- 2011-2012 Teacher of the course *Applicazioni basate su tecnologie Web e basi di dati: Vulnerabilità e metodologie per la sicurezza dei sistemi* within the Piano di Formazione sulla Sicurezza of the University of Modena and Reggio Emilia.
- Dal 2009-2010 al 2010-2011 Teacher of the course *Sicurezza per sistemi in reti locali* within the 2nd level Master “Sicurezza Informatica Disciplina Giuridica” of the University of Modena and Reggio Emilia.
- From 2006-2007 to 2016-2017 Teaching assistant for the courses *Sicurezza Informatica* and *Sicurezza Informatica e Laboratorio* within the Master’s degree course in Computer Engineering and Science of the University of Modena and Reggio Emilia.

Thesis supervisor

Supervisor of 9 theses of the 1st level Master “Cyber Defence” organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces of Chiavari.

Supervisor of 6 theses of the 2nd level Master “Sicurezza Informatica Disciplina Giuridica” of the University of Modena and Reggio Emilia.

Co-supervisor of more than 40 theses related to cybersecurity for the Master’s degree course in Computer Engineering and Science.

Technology transfer

Results of research in the field of information security led to the delivery of industrial research and professional training for companies, organization and public administrations.

Industrial research

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| Comune di Modena 06/2017 | Design and execution of Vulnerability Assessments. |
| Accademia Militare di Modena 06/2017 | Design and execution of Vulnerability Assessments. |
| Magneti Marelli S.p.a. 01/2016-today | Design of innovative systems for improving the security of software and networks components of modern vehicles. Part of the project is based on research results presented in the paper [24]. Within this project Mirco Marchetti coordinates the research activities of a research assistant. |
| Cryptolab S.r.l. 02/2014-08/2015 | Analysis of the robustness of partially homomorphic encryption algorithms. Within this project Mirco Marchetti led the research activities. |
| Comune di Modena 01/2013-06/2013 | Design and implementation of intrusion detection systems based on network traffic analysis. Vulnerability assessment of Web applications. |
| eBilling S.p.a. 11/2012-06/2013 | Design and implementation of a performance monitoring system and anomaly detector. |
| Expert System S.p.a. 12/2012 - 05/2013 | Design and implementation of software modules characterized by high security guarantees. |
| Elsag-Datamat S.p.a. 06/2009-12/2010 | Design and implementation of distributed architecture for infosharing and cooperative analysis of security events based on research results published in [40, 39, 12]. |

Professional training

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| Granarolo S.p.a. 02/2016 | Seminar “Threat awareness and management” (in Italian) organized by Granarolo S.p.a. for staff training (12 hours). |
| Banca d’Italia 10/2015 | Staff training related to tools and architectures for Big Data and security analytics. |
| Polizia di Stato 03/2015 | Teacher of the course <i>Internet e il Web</i> within a training initiative for the staff of Polizia Postale e delle Comunicazioni at the Centro Addestramento Polizia di Stato (CAPS). |
| Italian Space Agency 02/2015 | Seminar “L’ICT e i temi della sicurezza” for staff of the Italian Space Agency on February 17-18 and 25-26 2015, 18 hours. |
| Polizia Postale e delle Comunicazioni 06/2015 | Seminars “Cross Site Scripting”, “SQL Injection” and “Tecniche di anonimizzazione” for the staff of the “Centro Nazionale Anticrimine Informatico per la Protezione delle Infrastrutture Critiche” (CNAIPIC) of the Polizia Postale e delle Comunicazioni (12 hours). |
| Modena Municipality 01/2013-06/2013 | Professional training for Web developers of the Modena Municipality aimed at teaching best practices for the development of secure applications. |
| Expert System S.p.a. 12/2012 - 05/2013 | Highly specialized professional training in several fields of information security. |

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